AMENDMENTS TO THE SPECIFICATION

In the Title:

In accordance with 37 C.F.R. § 1.121(b)(1), replace the title at the beginning of the application as follows:

IMPLANTABLE ORTHOPAEDIC DEVICE FOR APPLYING A UNIDIRECTIONAL FORCE TO VERTEBRAE ~~ORTHOPAEDICS DEVICE AND SYSTEM~~

In the Abstract:

In accordance with 37 C.F.R. § 1.121(b)(2), delete the Abstract and replace the Abstract as follows:

~~An implantable, temporospatially dynamic, rachiorthotic orthopaedics device comprising: a unidirectional force generating means for generating a unidirectional force which acts over a range of deflection of said unidirectional force generating means; a first attachment means for attaching said unidirectional force generating means to a first vertebra; and a second attachment means for attaching said unidirectional force generating means to a second vertebra; wherein said unidirectional force is applied by said unidirectional force generating means via said first and second attachment means to said first and second vertebrae such that said first vertebra and said second vertebra are urged, over a period of time (which period of time extends beyond the end of a medical procedure to implant said orthopaedics device) and over a range of rotational, axial and/or flexional/extensional motion, towards a predetermined desired spatial relationship with respect to one another, whereby, over said period of time, said unidirectional force urges a proprioceptively neutral position of said first and second vertebrae towards a desired neutral position, and whereby a biological correction of a spinal deformity, spinal injury or other spinal disorder may be mechanically facilitated.~~

An implantable, temporospatially dynamic, rachiorthotic orthopaedics device includes a spring for generating a unidirectional force, and first and second attachment means for attaching the spring to first and second vertebrae. The vertebrae are urged over a period of time (extending beyond the end of an implantation procedure) and over a range of rotational, axial and/or flexional/extensional motion, towards a desired spatial relationship. The force is generated by setting the spring in tension or compression between first and second attachment points during implantation. At least one of the attachment means includes unidirectional gripping means which allow motion of the spring relative to that attachment means in one axial direction, but prevent such motion in the opposite direction. The force is capable of urging a proprioceptively neutral position of the vertebrae towards a desired neutral position; biological correction of a spinal deformity, injury or other disorder may thus be mechanically facilitated.

In the Summary of the Invention:

In accordance with 37 C.F.R. § 1.121(b)(1), replace the first and second paragraphs of the section as follows:

The present invention seeks to overcome the problems mentioned through provision of an implantable, temporospatially dynamic, rachiorthotic orthopaedics device ~~according to claim 1~~. According to a first aspect of the invention, the device includes a spring for generating a unidirectional force which acts over a range of deflection of the spring, and first and second attachment means for attaching the spring to first and second vertebrae respectively. The unidirectional force is capable of being applied by the spring via the first and second attachment means to the vertebrae; the vertebrae are thus urged over a period of time (which period of time extends beyond the end of a medical procedure to implant the orthopaedics device) and over a range of rotational, axial and/or flexional/extensional motion, towards a predetermined desired spatial relationship with respect to one another. The unidirectional force is generated by setting the spring in tension or compression between first and second attachment points during the course of implantation. At least one of the first and second attachment means comprises unidirectional gripping means which allow motion of the spring in

relation to that attachment means in one axial direction of the spring, but prevent such motion in the opposite axial direction of the spring. Over the period of time, the unidirectional force is capable of urging a proprioceptively neutral position of the first and second vertebrae towards a desired neutral position; a biological correction of a spinal deformity, spinal injury or other spinal disorder may thus be mechanically facilitated.

~~Further desirable features and desirable embodiments as well as orthopaedics system, a hybrid static/dynamic orthopaedics system and an implantation kit are detailed in claims 2 to 24.~~ According to another aspect of the invention, an implantable, temporospatially dynamic, rachiorthotic orthopaedics system includes a plurality of orthopaedics devices, with each of the devices including the features described above. The orientation of the spring of one of the devices may be set independently of the setting of the orientation of the spring of at least one other of the devices. According to a further aspect of the invention, an implantable, temporospatially dynamic, rachiorthotic orthopaedics device includes a unidirectional force generating means, and at least one of the first and second attachment means includes a base plate for fixation to a vertebra and a connecting means for attaching the unidirectional force generating means to the base plate. The base plate is formed such that the connecting means can be connected at various locations on the base plate. At least one of the first and second attachment means includes a mobile joint chosen from the group consisting of a ball-and-socket joint or a hinge joint or a saddle joint or a pivot joint or a gliding joint or a condyloid joint, and in which the mobile joint is provided by an interface between the unidirectional force generating means and the connecting means.

In the Brief Description of Drawings:

In accordance with 37 C.F.R. § 1.121(b)(1), replace the second and third paragraphs of the section as follows:

Figure 2: A different view of the embodiment shown in ~~embodiments of~~ Figure 1.

Figure 3: A different view of the embodiment shown in ~~embodiments of~~ Figure 1.

In the Detailed Description:

In accordance with 37 C.F.R. § 1.121(b)(1), replace the second and third full paragraphs on page 8 as follows:

The springs, 4, or rods, 13, are attached to the plate. This is done by way of a pin, 15, which with its small base plate, 16, can be attached to the plate, 5. This then allows the spring, 4, to be attached to the plate, 5. There is a ring, 17, at one end of the spring, 4. This is attached to a spherically-formed member, 18, which in turn is attached to the pin, 15 to form a type of universal joint. The spherically formed member, 18, slides over or screws onto the pin, 15, and is firmly attached to the pin, 15. The other end of the spring, 4, is passed through a ring, 11, which in turn is attached to the adjacent plate, 5. A clamping device, 12, is used which clamps on to the spring, 4, and only allows the passage of the spring, 4, in one direction through the clamp (so that the clamp functions as a unidirectional gripping means for the spring). This then allows distraction of the spring, 4, and compression between the two ends of the spring, 4.

In the embodiment shown in Figure 2, universal joint 10 (which includes pin 15, ring 17 and spherically-formed member 18) serves as part of a connecting means ~~connector~~ attaching the spring 4 to the plate 5. More generally, a connecting means ~~connector~~ for attaching the spring to the plate may include a mobile joint such as a ball-and-socket joint, hinge joint, saddle joint, pivot joint, gliding joint, or condyloid joint. In addition, it will be appreciated that the clamping device 12 may clamp or grip the spring 4 (e.g. by a set screw or similar mechanism), or be released therefrom, so that the clamping device serves as a releasable clamping means for clamping the spring.